TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15B
ICES-003, ISSUE 6, JANUARY 2016

TEST REPORT

For

Flyability SA

EPFL INNOVATION PARK BLDG C Lausanne CH-1014 Switzerland

FCC ID:2AL7M-MAGICSPHERE
Tested Model: No. 3

Report Type:	**Product Type:**
Original Report	Aircraft

Report Number:	RDG190226002-00A
Report Date:	2019-03-12
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA* or any agency of the Federal Government. * This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Type:	Aircraft
EUT Name:	ELIOS 2
EUT Model:	No. 3
Rated Input Voltage:	19Vdc from battery
The Highest Operating Frequency:	2476.5MHz
External Dimension:	400mm(L)*400mm(W)*400mm(H)
Serial Number:	190226001
EUT Received Date:	2019/2/25

Objective

This report is prepared on behalf of ***Flyability SA*** in accordance with FCC Part 15B Part 2, subpart J, and Part 15, Subpart A and B of the Federal Communications Commission's rules, and ICES-003, Issue 6, January 2016 Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B, and ICES-003, Issue 6, January 2016.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID:2AL7M-MAGICSPHERE.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing inOperating mode, in this mode, the EUT was controlled by remote controller, shooting Video, trasmitting the video data to Remote controller and recording the data to the SD card.

Equipment Modifications

No modification was made to the EUT.

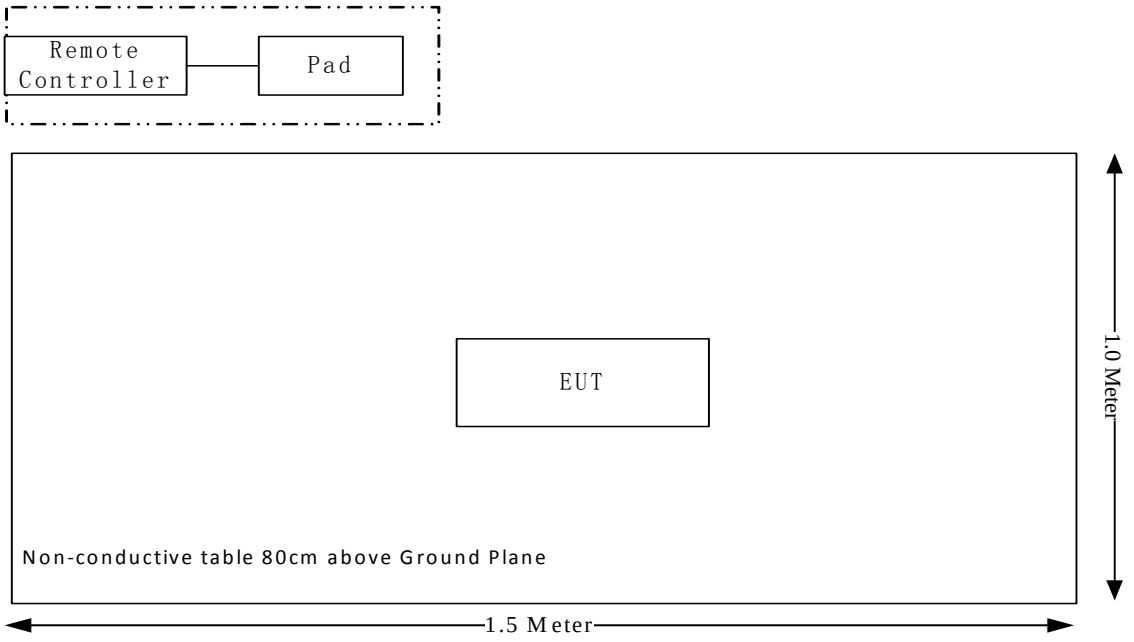
EUT Exercise Software

The software “Cockpit.app” installed in the Pad was used during test.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DJI	Remote Controller	GL858L	/
SAMSUNG	Pad	/	/

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated emissions Below 1GHz					
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2018-05-06	2019-05-06
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Radiated emissions Above 1GHz					
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
E-Microwave	Band-stop Filters	OBSF-2400-2483.5-S	OE01601525	2018-06-16	2019-06-16

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Environmental Conditions

Test Item:	Radiated emissions Below 1GHz	Radiated emissions Above 1GHz
Test Date:	2019-02-27	2019-03-04
Tester:	Tyler Pan	Kami Zhou
Temperature:	22.4°C	23.7°C
Relative Humidity:	50%	63%
ATM Pressure:	100.9kPa	101.1kPa

SUMMARY OF TEST RESULTS

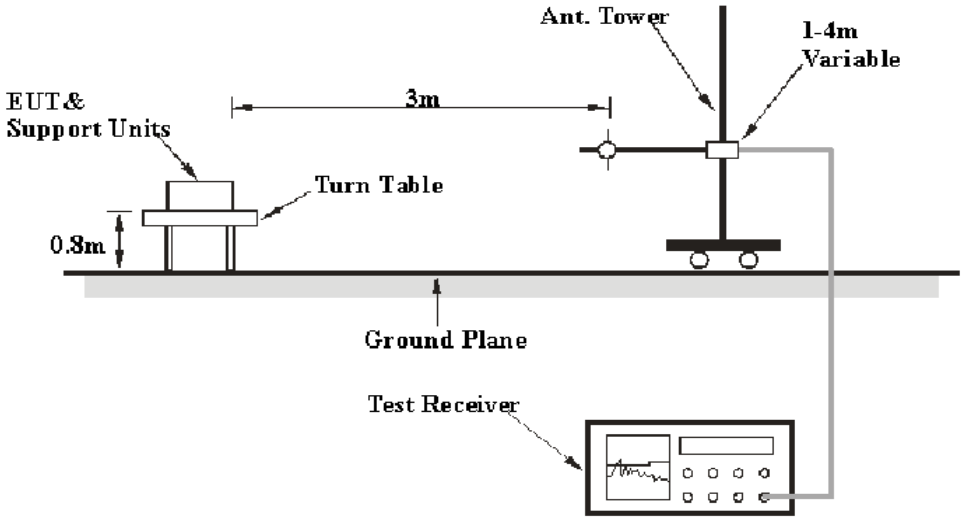
Rule and Clause	Description of Test	Test Result
FCC §15.107 ICES-003 Clause 6.1	Conducted emissions	Not applicable
FCC §15.109 ICES-003 Clause 6.2	Radiated emissions	Compliance

Not Applicable: The EUT was supplied by battery, it can't work during charging.

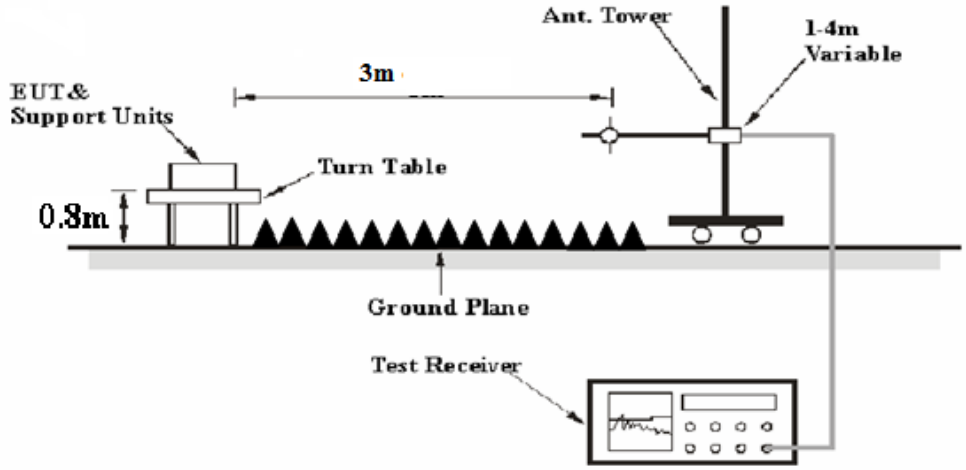
RADIATED EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B and Innovation, Science and Economic Development Canada ICES-003 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 13 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:
Corrected = Antenna Factor + Cable Loss - Amplifier Gain
or
Corrected = Antenna Factor + Cable Loss + Insertion loss of attenuator - Amplifier Gain

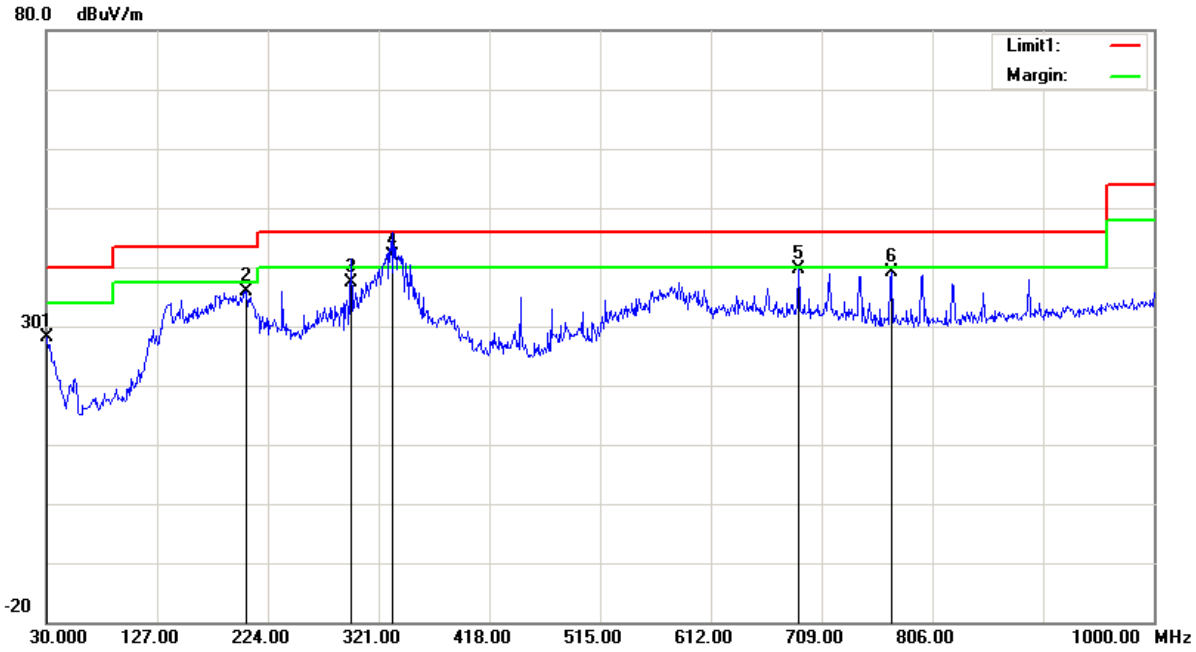
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation
is as follows:

Margin = Limit – Result

Test Data

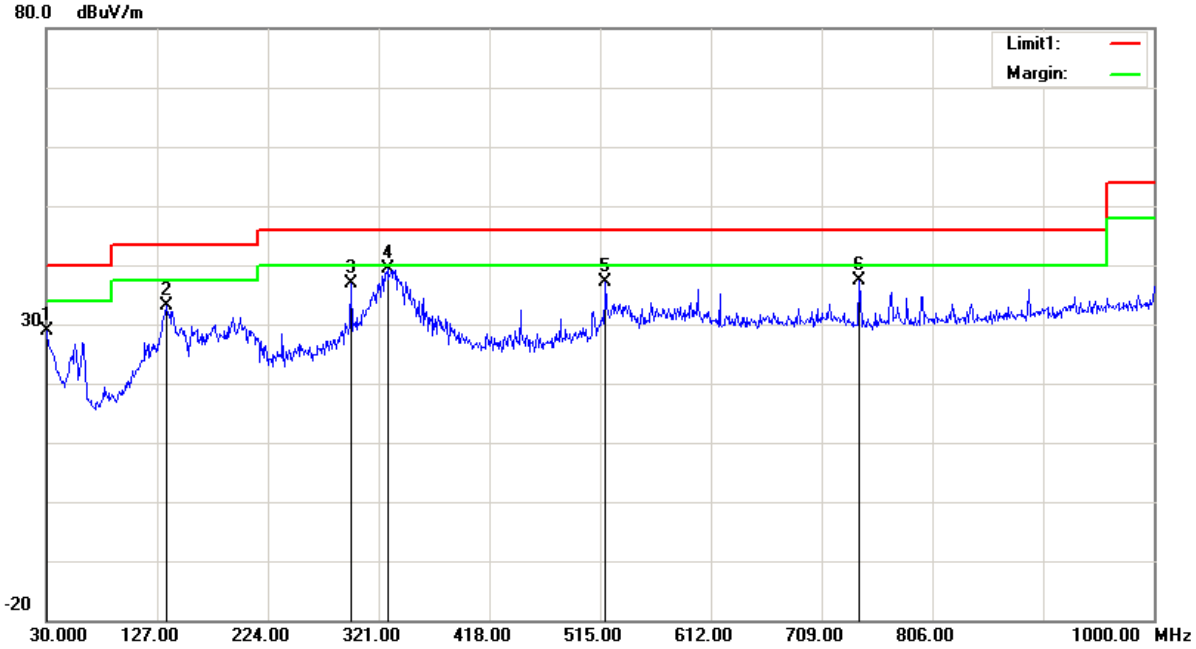
Please refer to following table and plots:

Condition:	FCC Part 15B Class B	**Polarization:**	Horizontal
EUT:	ELIOS 2	**Power:**	DC 19V
Model:	No. 3	**Distance:**	3m
Test Mode:	Operating		



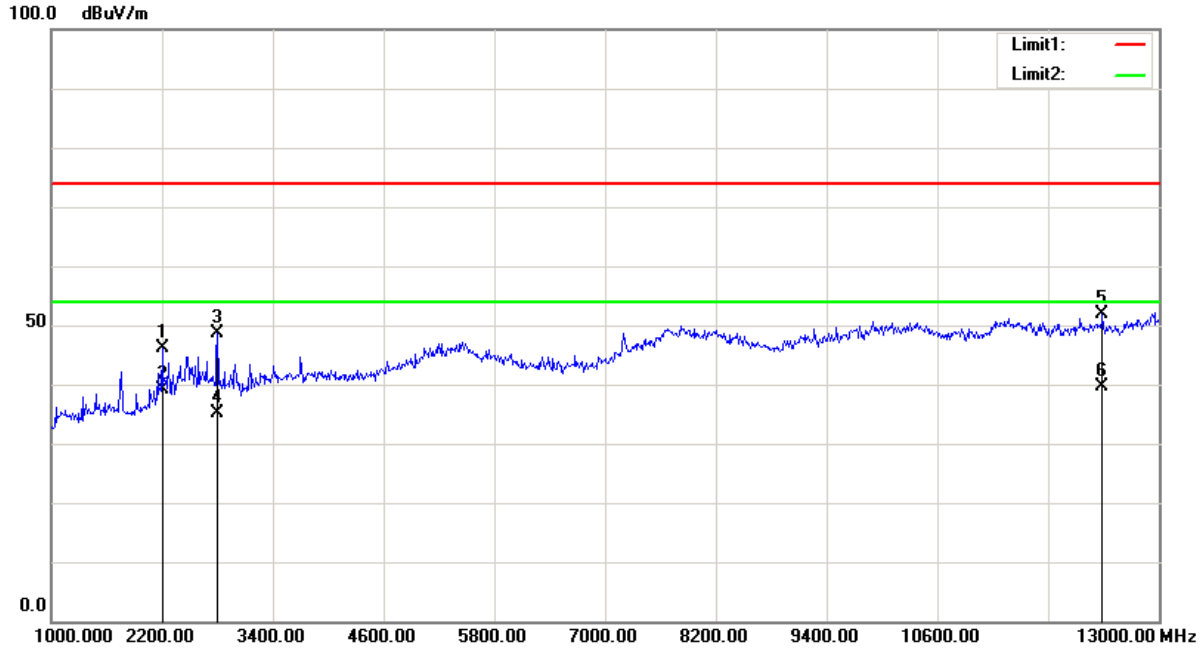
Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.0000	26.31	peak	1.72	28.03	40.00	11.97
205.5700	42.71	peak	-6.88	35.83	43.50	7.67
296.7500	41.20	QP	-3.90	37.30	46.00	8.70
332.6400	45.20	QP	-3.36	41.84	46.00	4.16
688.6300	36.82	peak	2.70	39.52	46.00	6.48
770.1100	34.73	peak	4.31	39.04	46.00	6.96

Condition:	FCC Part 15B Class B	**Polarization:**	Vertical
EUT:	ELIOS 2	**Power:**	DC 19V
Model:	No. 3	**Distance:**	3m
Test Mode:	Operating		



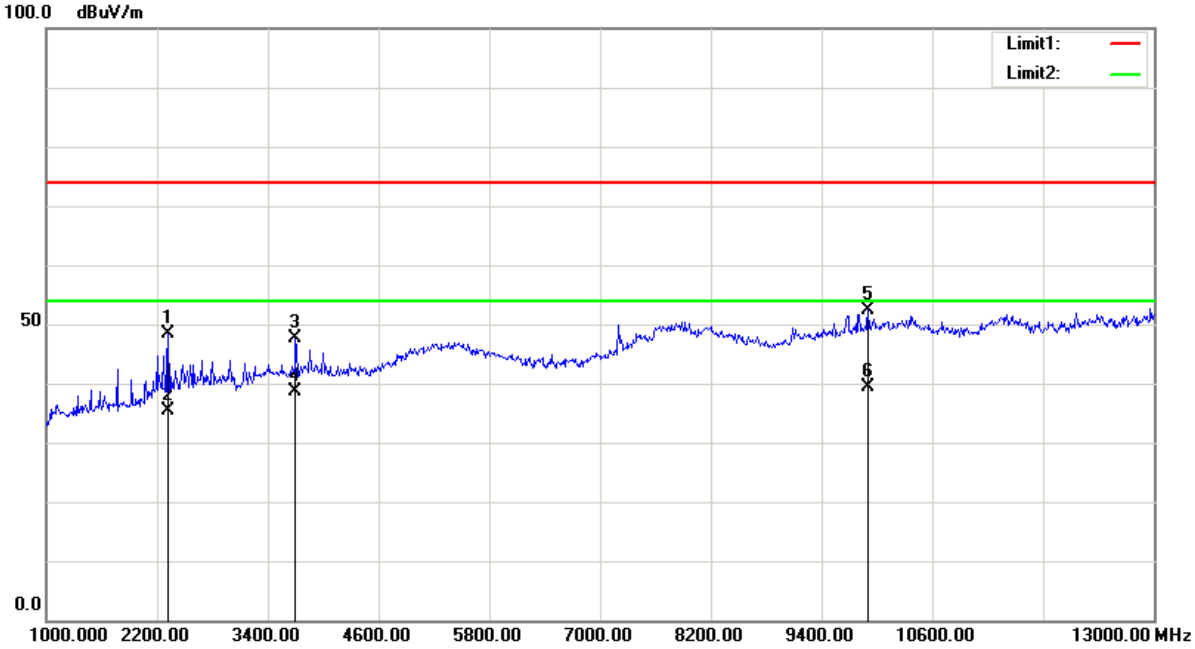
Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.0000	27.19	peak	1.72	28.91	40.00	11.09
134.7600	38.31	peak	-5.11	33.20	43.50	10.30
296.7500	40.82	peak	-3.90	36.92	46.00	9.08
328.7600	42.64	peak	-3.36	39.28	46.00	6.72
519.8500	36.98	peak	0.09	37.07	46.00	8.93
741.9800	34.01	peak	3.46	37.47	46.00	8.53

Condition:	FCC Part 15 Class B	**Polarization:**	Horizontal
EUT:	ELIOS 2	**Power:**	DC 19V
Model:	No. 3	**Distance:**	3m
Test Mode:	Operating		



Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2200.000	52.72	peak	-6.71	46.01	74.00	27.99
2200.000	45.84	AVG	-6.71	39.13	54.00	14.87
2800.000	53.87	peak	-5.24	48.63	74.00	25.37
2800.000	40.25	AVG	-5.24	35.01	54.00	18.99
12388.000	44.59	peak	7.38	51.97	74.00	22.03
12388.000	32.26	AVG	7.38	39.64	54.00	14.36

Condition:	FCC Part 15 Class B	**Polarization:**	Vertical
EUT:	ELIOS 2	**Power:**	DC 19V
Model:	No. 3	**Distance:**	3m
Test Mode:	Operating		



Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2320.000	55.05	peak	-6.73	48.32	74.00	25.68
2320.000	42.17	AVG	-6.73	35.44	54.00	18.56
3706.000	50.33	peak	-2.70	47.63	74.00	26.37
3706.000	41.25	AVG	-2.70	38.55	54.00	15.45
9904.000	45.05	peak	7.33	52.38	74.00	21.62
9904.000	32.11	AVG	7.33	39.44	54.00	14.56

*******END OF REPORT*******